



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/388,804	09/01/1999	PETE N. MOORE	81862.P157	4456
8791	7590	12/28/2004	EXAMINER	
BLAKELY SOKOLOFF TAYLOR & ZAFMAN				LY, ANH VU H
12400 WILSHIRE BOULEVARD				
SEVENTH FLOOR				
LOS ANGELES, CA 90025-1030				2667
ART UNIT				
PAPER NUMBER				

DATE MAILED: 12/28/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.	09/388,804	Applicant(s)
Examiner	Anh-Vu H Ly	Art Unit

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 26 August 2004.
- 2a) This action is **FINAL**. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-23 is/are pending in the application.
 - 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 1-23 is/are rejected.
- 7) Claim(s) _____ is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) <input type="checkbox"/> Notice of References Cited (PTO-892) 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.	4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____. 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) 6) <input type="checkbox"/> Other: _____.
---	--

DETAILED ACTION

Response to Amendment

1. This communication is in response to applicant's amendment filed August 26, 2004.

Claims 1-23 are pending.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1, 9, and 12 are rejected under 35 U.S.C. 102(e) as being anticipated by Putcha et al (US Pub 2003/0198241 A1). Hereinafter, referred to as Putcha.

With respect to claims 1, 9, and 12, Putcha discloses in Fig. 2, an ATM switch 12 (network communication device) for directing data units over a communication network includes at least one input and/or output port, a plurality of buffer units, and a buffer allocator. However, Putcha further discloses on page 3, 28th paragraph and on page 4, 53rd paragraph, that the communication network device may be a circuit switch, a bridge, or a router using a connection oriented protocol, or may be another similar device arranged to direct data units transferred from an origination device to a destination device over a communication network. This implies that the network communication device may be an IP router. Further, it is known that an IP router directing traffic having variable length packets and having plurality of input/output ports for interconnecting LANs to form a wide area network (WAN) (switching data traffic having

packets of data of a plurality of sizes between a first number of LAN ports and a second number of WAN links of a router resource).

Putcha discloses in paragraphs 64-65, a method of allocating buffers (for each input port) (controlling utilization of router resource) based on the utilization of the output ports (bandwidth availability of corresponding bundles of WAN links assigned to each of the LAN ports), e.g., port line speed, aggregate PCR, aggregate SCR for all connections.

Putcha discloses (70th paragraph) that buffer allocation algorithm (for input ports) (controlling utilization of router resource) may be performed when opening a new connection or in general, at any time during the operation when there is an unexpectedly high cell loss. Herein, the unexpectedly high cell loss (as considered by the examiner) e.g., refers to the ratio of the receiving rate, at the input, greater than the processing or switching rate of the switch (switching capacity of the router resource). Therefore, LAN port (buffers) is controlled according to the switching capacity of the router resource. Furthermore, the LAN port capacity (page 4, 53th paragraph) is considered as equivalent to the switching capacity of the router resource by the examiner (controlling utilization of router resource according to a switching capacity of the router resource).

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 5-8 and 16-23 are rejected under 35 U.S.C. 102(b) as being anticipated by Hanson et al (US Patent No. 5,633,861). Hereinafter, referred to as Hanson.

With respect to claims 5-8 and 16-19, Hanson discloses in Fig. 3, that packets are admitted to the switch according to network utilization information. Hanson discloses (col. 9, lines 20-40) that CUF is the key factor of the traffic management system. It is the ratio of the demand for network resources to the total available resources. The network resources being monitored are processor power (switching capacity of the router resource) and trunk bandwidth (bandwidth availability of a corresponding exit point). The CUF value reported by each node is the maximum of both processor utilization and trunk utilization (determining, at an entry port selected from one of a first number of a LAN ports of a router resource, whether or not to admit inbound traffic according to a fair allocation distribution scheme that allows traffic to be admitted according to bandwidth availability of a corresponding exit port for the traffic selected from one of a second number of WAN links of the router resource and a current utilization of total switching capacity of the router resource). Hanson discloses in Fig. 1, a schematic block diagram of a packet based communications network. Further, Hanson discloses on page 1, in lines 14-17 that the packet-based communications network provides for the transmission of packets between various nodes in the communications network. A packet comprises any fixed or variable size grouping of bits (switching admitted inbound traffic having packets of data of a plurality of sizes from the entry port to the exit port of the router resource).

With respect to claims 20 and 21, Hanson discloses (col. 11, lines 12-30) that packets are marked as committed packets, statistically committed packets and excess packets. Once all

credits have been exhausted during a measurement period, packets are discarded. The marking of packets allows the transit modules to selectively discard packets (at the input interfaces of the switches) under extreme network congestion situations, e.g., such as when the ratio of the total number of offered packets equals to or greater than the maximum switching capacity of the processor (col. 9, lines 34-39) (throttling back those input ports which attempt to exceed the output bandwidth capacity of their associated output links or which attempting to utilize more than their allocated share operating at the total switching capacity).

With respect to claims 22 and 23, Hanson discloses (see Abstract) a method for managing and controlling traffic in a packet-based network. Therefore, in order to implement such method, the instructions or program must be stored and executed (wherein sequences of instructions is embodied on one of a floppy disk and a CD-ROM and/or embodied in electronic signals transported through a communication medium).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 2 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Putcha et al (US Pub 2003/0198241 A1) in view of Bonomi et al (US Patent No. 5,838,681). Hereinafter, referred to as Putcha and Bonomi.

With respect to claims 2 and 13, Putcha discloses (see Abstract) a method of allocating buffer units for storing received packets based on the priority and port utilizations. Putcha does not disclose individual ones of the LAN ports are permitted to exceed their fair share of switching capacity of the router resource if a current switching load due to traffic from all of the LAN ports is less than a maximum switching capacity for the router resource. Bonomi discloses (see Abstract) a method for optimizing the utilization of system resources by enabling ports having a physical capacity which substantially exceeds the capacity of a conventional ATM switch to be interconnected for data transfer. Bonomi discloses (col. 9, lines 37-40) that the CPU allocates switch capacity among the ports in accordance with their needs, as long as the total aggregate capacity of the switching core (switching capacity of the router) is not exceeded. It would have been obvious to one having ordinary skill in the art at the time the invention was made to include dynamic allocation of port bandwidth in Putcha's system, as suggested by Bonomi to maximize the aggregate switching capacity of the switch for data transfer.

5. Claims 3-4, 10-11, and 14-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Putcha et al (US Pub 2003/0198241 A1) in view of Hanson et al (US Patent No. 5,633,861). Hereinafter, referred to as Putcha and Hanson.

With respect to claims 3-4, 10-11, and 14-15, Putcha discloses (see Abstract) a method of allocating buffer units for storing received packets based on the priority and port utilizations. Putcha does not disclose if a current switching load due to traffic from all of the LAN ports is equal to a maximum switching capacity of the router resource then those of the LAN ports that are attempting to utilize more than their fair share of the bandwidth availability or switching

capacity are throttled back. Hanson discloses (col. 9, lines 20-40) that CUF is the key factor of the traffic management system. It is the ratio of the demand for network resources to the total available resources. The network resources being monitored are processor power and trunk bandwidth. The CUF value reported by each node is the maximum of both processor utilization and trunk utilization. Further, Hanson discloses (col. 11, lines 12-30) that packets are marked as committed packets, statistically committed packets and excess packets. Once all credits have been exhausted during a measurement period, packets are discarded. The marking of packets allows the transit modules to selectively discard packets (at the input interfaces of the switches) under extreme network congestion situations, e.g., such as when the ratio of the total number of offered packets equals to or greater than the maximum switching capacity of the processor (col. 9, lines 34-39) (if a current switching load due to traffic from all of LAN ports is equal to a maximum switching capacity of the router resource then those of LAN ports that are attempting to utilize more than their fair share of the bandwidth availability or the switching capacity are throttled back). It would have been obvious to one having ordinary skill in the art at the time the invention was made to include traffic management and congestion control method in Putcha's system, as suggested by Hanson to efficiently manage the packet-based networks.

Response to Arguments

6. Applicant's arguments filed August 26, 2004 have been fully considered but they are not persuasive.

Applicant presents on page 9 that Putcha fails to teach or suggest the claimed limitation "switching data traffic having packets of data of a plurality of sizes between a first number of LAN ports and a second number of WAN links of the router resource" in the amended

independent claims 1, 9, and 12. Examiner respectfully disagrees. Putcha discloses on page 3, 28th paragraph and on page 4, 53rd paragraph, that the communication network device may be a circuit switch, a bridge, or a router using a connection oriented protocol, or may be another similar device arranged to direct data units transferred from an origination device to a destination device over a communication network. This implies that the network communication device may be an IP router. Further, it is known that an IP router directing traffic having variable length packets and having plurality of input/output ports for interconnecting LANs to form a wide area network (WAN) (switching data traffic having packets of data of a plurality of sizes between a first number of LAN ports and a second number of WAN links of a router resource).

Applicant argues on page 10 that Hanson fails to teach or disclose a router resource that controls admission based on the bandwidth and switching capacity of the router resource. Examiner respectfully disagrees. Hanson discloses in Fig. 3, that packets are admitted to the switch according to network utilization information such as switching capacity and trunk bandwidth.

Applicant argues on page 11 that Bonomi fails to teach or suggest that individual ones of the LAN ports are permitted to exceed their fair share of the switching capacity of the router resource if a current switching load due to traffic from all of the LAN ports is less than a maximum switching capacity of the router resource. Examiner respectfully disagrees. Bonomi discloses (col. 9, lines 37-40) that the CPU allocates switch capacity among the ports in accordance with their needs, as long as the total aggregate capacity of the switching core (switching capacity of the router) is not exceeded. This implies that (as interpreted by the examiner) when one of the ports has a higher demand for the switching capacity than other ports,

the switching capacity then allocated by the switch, since the switching capacity is allocated according to the needs of the ports. In other words, a port is allowed to exceed its initial allocated switching capacity as long as the total aggregate capacity is not exceeded.

Conclusion

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anh-Vu H Ly whose telephone number is 571-272-3175. The examiner can normally be reached on Monday-Friday 7:00am - 4:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chi Pham can be reached on 571-272-3179. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

avl


CHI PHAM
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800
12/21/04